The Human Emotional Response to Bushfire Disasters

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MCDERMOTT, B.M.C. (1996). The human emotional response to bushfire disasters. Proc. Linn. Soc. N.S.W. 116: 127–132

Disasters can be viewed from the community, group or individual perspective, and from a variety of theoretical approaches. This paper details the clinical presentation of acute and chronic distress following disasters, where possible highlighting work following Australian bushfires. Preliminary findings from the Sutherland Bushfire Trauma Project are reported and service provision issues discussed.

Manuscript received 10 July 1995, accepted for publication 10 Dec 1995.

INTRODUCTION

The human emotional response to bushfires and other disasters is an area of great clinical and theoretical complexity. This complexity is reflected by contributions to the literature focused on the individual, group or administrative responses to disasters, by the traditional focus on the immediate post disaster phase as opposed to the more recent focus on long term sequelae, and by the various aetiological models advanced. Theoretical constructs include the medical 'disease model' with an emphasis on possible neurophysiological changes following trauma. Postulated psychological mechanisms include learnt responses following disasters, the individual's perception of threat during the stressful event and the presence of dysfunctional cognitions following a disaster, such as the individual's causal attribution's concerning the traumatic event. Lastly, sociological views have focused on altered community and family functioning following traumatic events.

This paper will focus on the extent to which disasters pose a threat to the emotional health of the individual, the clinical presentations typically seen after disasters such as bushfires and recent service provision innovations. For a more extensive discussion of the effect of trauma on adolescents and children see Terr (1991) and for adults Choy and De Bosset (1992). McFarlane and Raphael (1984) have reported specifically on the effects of the 1983 Ash Wednesday bushfires.

Much historical knowledge on this topic is anecdotal or descriptive. The application of scientific rigour to this research area has been impeded by the episodic, unpredictable nature of disasters and the decay of knowledge gained from one disaster to the next. Past research has been criticised because of the deficiency of sound methodology including the lack of standardised interviews and diagnostic criteria, comparison and control groups, and blind raters (Garmezy 1986). Further confounders such as premorbid individual vulnerability and protective factors, family variables and community factors have not been adequately accounted for. There is evidence that many of these deficiencies are being addressed in recent research with progress towards a more scientific model of description, identification of similarities, a codified classification system and subsequent hypothesis formation and experimentation — the 'experimental–theoretical' period

described by Benedek (1985). Lastly ethical principles including the United Nations guidelines on research involving refugee populations is a major consideration in this area, and the use of control groups in disaster research requires close monitoring and adherence to rigorous approved ethical processes.

Disaster research has its antecedents in the literary report of the human experience of war. Adult psychological sequelae from involvement in war has been frequently recorded in fictional works and early medical writing, including the report of DaCosta's Syndrome following the American Civil War, 'Shell Shock' following World War I, and 'War Neurosis' after World War II. More recently emotional trauma incurred during the Vietnam War led to the inclusion of Post Traumatic Stress Disorder (PTSD) in the American Psychiatric Association's Diagnostic and Statistical Manual Third Edition (DSM III 1980), and its maintenance in DSM III-Revised and DSM IV (1994).

Children and adolescents are frequent victims in natural and man-made disasters. School-children, given they travel widely and often in groups, are at increased risk of trauma in car, coach, plane and shipping accidents and disasters. Despite the frequency of children and adolescents being involved in disasters, research concerning the emotional sequelae of trauma in the child and adolescent population significantly lags that in the adult population.

There is no longer doubt concerning the propensity of adults, children and adolescents to be emotionally traumatised after an event that was outside the range of usual human experience, and caused extreme fear and a perceived threat to life. Indeed examining evacuees from Cyclone Tracy, Parker (1977) found the latter to be the strongest predictor of initial psychiatric morbidity. Research in childhood that elucidate this point include Terr's descriptive reports (Terr 1979, 1983, 1991) after a school bus hostage situation, review of child survivors of a school sniper attack (Pynoos et al. 1987) and Yule's research on adolescent survivors of two shipping disasters (Yule 1990, 1992). In adults there is a large literature on PTSD in Vietnam and other war veterans and survivors of natural disasters. In a bushfire context, significant rates of distress were found in firefighters (McFarlane 1988).

ACUTE EMOTIONAL RESPONSE TO DISASTERS

Research and fictional accounts emphasise both post disaster emotional and behavioural symptoms, and concurrent impairment of functioning. The report of the individual appearing dazed, bewildered and confused is common, so too the afflicted denying their traumatic experience. Evidence of impairment includes the inability to complete the chores of daily living ie dressing, eating, washing, and the inability to complete expected tasks such as employment.

The American DSM IV classification (1994) states Acute Stress Disorder may last from 2 days to 4 weeks. Prominent symptoms include decreased emotional responsiveness, a reduced awareness of the environment, persistent re-experiencing of the event, avoidance of stimuli that may arouse recollections of the trauma and symptoms of arousal and anxiety (DSM IV 1994). Associated features include possible coexistent bereavement with symptoms of lowered mood, despair, hopelessness and anger. Survivors often experience a feeling of guilt that others were injured or killed. Finally, whilst broad categorical definitions attempt to be inclusive, the range of human feelings is such that any aroused or altered feeling state is possible following a disaster. Indeed excitement or a feeling of self efficacy in the face of extreme adversity is often witnessed in some individuals during the aftermath of a disaster.

PREVALENCE OF POST TRAUMATIC STRESS DISORDER (PTSD)

Most of the following comments will focus on PTSD, however comorbid depression or an anxiety disorder may predominate the clinical picture depending on the indi-

vidual's experience during the disaster, their antecedent resilience and post disaster experiences. Comorbidity is an important treatment and prognostic consideration: after the Ash Wednesday fires the presence of multiple disorders was used to predict a worse outcome in distressed firefighters (McFarlane 1992).

The reported incidence of PTSD varies greatly, indeed uniform PTSD rates would be unexpected. Variations in the prevalence of PTSD following disasters are due to the characteristics of that particular event such as the extent of loss of life and property, community factors and infrastructure where it occurred, and the elapsed time from the disaster to when the subjects were investigated. Further the reported prevalence varies with research design; lower rates are seen with increasing study rigour and with semi-structured interviews rather than self report questionnaires (Rubonis & Bickman 1991).

The emotional toxicity of different traumatic experiences is often difficult to compare. Few studies have specifically looked at post bushfire distress, generalisations must be made from studies involving a range of natural disasters and man-made adversity. Following the kidnapping of 26 children from Chowchilla, California., and their subsequent period of captivity, Terr in a descriptive study reported that 100% of children experienced 'psychic trauma' (Terr 1979). Pynoos and Eth reported 94.3% of school children trapped in a school playground by sniper fire suffered PTSD symptoms. This rate decreased relative to the decreased proximity to the sniper and the direct threat to life (Pynoos & Eth 1987). Using self report questionnaires Yule found 41% of adolescent girl survivors of a shipping disaster were above standardised adult cut-off scores for post traumatic distress (Yule 1991). Recently Shannon and colleagues using a self report PTSD instrument surveyed 5,687 children 3 months after Hurricane Hugo. A post traumatic distress rate of 5% was reported (Shannon et al. 1994).

A battery of self report questionnaires assaying levels of distress, anxiety and depression were used in the Sutherland Bushfire Trauma Project (SBTP). On the Impact of Event Scale (Horowitz 1979) 10.4% of grade 4, 5 and 6 students (age 8–11 years) satisfied criteria for post disaster distress. Younger children were screened with a combination of projective tests and a child and parent questionnaire, 11.3% were identified. A smaller number of adolescents, 3.3% were identified on the IES. The latter is likely to be an under-estimate of the PTSD prevalence given the systematic bias that results from many adolescents knowing that high scores would lead to the offer of 'counselling'.

The issue of symptom chronicity is continuing to be clarified. Significant persisting symptom were found in adolescents 1 year after a shipping disaster by Yule (1992) and 14 months after a school sniper attack (Nader et al. 1990). MacFarlane in a cohort after the 1983 Ash Wednesday fires found that on parent report one third of children had persisting preoccupation with the fires 26 months later (MacFarlane 1987).

CLINICAL PRESENTATION OF PTSD

The clinical presentation of PTSD in the child and adolescent population is dependant upon the child's age and developmental stage. Non specific indications of distress may follow any trauma and include increased aggressive or withdrawn behaviour, clingy and dependant posturing, and sleep disturbance.

Infant and preschool children will communicate distress by behavioural change temporally linked to a given trauma. General signs include alterations in the ease of feeding, sleeping or settling the child. Regressed behaviour may include the child's unwillingness to explore the environment and increased stranger danger. Increased aggression or clingy behaviour is common.

Verbal preschool children display or voice broad emotions such as anger, sadness and excitement. Mixed or rapidly changing mood states are frequent. Separation anxiety is common, so too are specific trauma related fears. Post traumatic play (in Terr's termi-

nology re-enactments, lack the fun element of play) is typical and re-enactments are compulsive, repetitive behavioural sequences that are unconsciously linked to the traumatic event (Terr 1991). Such re-enactments can be contagious — involving non traumatised children and can place children in danger. An example following bushfires would be playing with fire.

School age children: with increasing age, symptomatology is more typical of adult PTSD. Age related phenomena still exist such as behaviour disturbance, however, behaviour becomes more sophisticated. Fear of death, separation anxiety, or fear of the event recurring are common. Magical thinking and ascribing omen status to events before the trauma, variously termed 'omen formation' (Terr 1979) or 'cognitive reappraisal' is common, so too are phenomena such as nightmares and sleep disturbance. 'Flashbacks' are reported, however, the visual images and sounds reported in the Pynoos et al. (1987) sample have a more daydream quality than the sudden, intrusive adult phenomena. Symbolic associations occur and cause distress. Yule reports a fear generalisation gradient in the adolescent survivors of a shipping disaster. In this group, situations approaching the traumatic event evoked increasing distress. Some were distressed by any reference to water, such as water running from a tap (Yule 1990).

Denial and disavowal of the traumatic event is less often seen in childhood PTSD, except with trauma secondary to chronic sexual or physical abuse where adult coercion to remain silent and enforced secrecy is common. However, children often withhold the extent of their distressing experiences from their parents. In Yule's reports after shipping disasters the children's stated reason was that they did not want to make their parents even more anxious by the added burden of their feelings of distress (Yule 1991). Another distinction from adult PTSD is that numbing and restriction of emotional responsiveness is less frequently reported.

Time may diminish the emotional impact and symptoms of PTSD. However, late onset symptoms may develop. Anniversary reactions are common and may increase over time. Often their occurrence is not immediately attributed to the traumatic event (Terr 1991). Anniversary symptoms may include any in the PTSD spectrum. 'Future foreshortening' was reported in 23 of 25 Chowchilla children and included the view that their lives would not be full, long, nor their career or marriage successful (Terr 1983). Symptom chronicity emphasises the possibility that PTSD in the child will alter that child's developmental trajectory. Persistent symptoms and altered future aspirations are not the only impairments of this condition, in refugee groups PTSD is associated with deterioration in school performance (Kinzie 1986). In all student groups lower academic achievement is probable.

Adult diagnostic criteria for PTSD emphasise the presence of symptoms indicating (1) persistent re-experiencing of the trauma (intrusive recollections, dreams, distress following symbolic reminders of the event, and acting as if the event is recurring) (2)Persistent avoidance of stimuli associated with the event and emotional numbing (diminished interest in activities, feeling detached and estranged from others) and (3) symptoms of increased arousal (sleep and concentration difficulties, increased startle response) (DSM VI 1994). Impairment in adult populations includes relationship difficulties, inability to fulfil employment potential and comorbid drug and alcohol abuse and dependence.

THE SUTHERLAND BUSHFIRE TRAUMA PROJECT: A PUBLIC HEALTH INNOVATION

For many years post disaster critical incident debriefing has been advocated and undertaken by schools, volunteer and professional organisations and less frequently by adults in the broader community. However, despite the usefulness of this intervention it

is unlikely that severe distress will be ameliorated, or a process of reintegration will be instituted by this procedure alone. Further, given the increasing literature on the chronic sequelae of trauma, it is clear that a second process of screening for morbidity, some time after the disaster is warranted. At this time individual's with persisting distress can be offered treatment before a chronic psychiatric condition is established.

Screening for PTSD would appear beneficial given the high prevalence of the disorder, its potential for chronicity and impairment, and the ability to distinguish distressed from non distressed individuals (after Fletcher & Fletcher 1988). Indeed Yule and Udwin (1991) found this process useful in adolescent survivors of a shipping disaster. Clearly screening may impose dangers to some; identification may expose the child and family to further anxiety, cost and inconvenience, it may encourage the assumption of the sick role and create stigma at school. As with any instrument or test, there is also an established false positive and negative illness identification rate.

Extensive screening (n = 4000 students) was utilised in the Sutherland Bushfire Trauma Project, an Australian program involving school children that is presently undergoing evaluation. The project assumptions were (1) a likely prevalence of Post Traumatic Stress Disorder of 5–10% in children and adolescents in an area that experienced significant morbidity, and home loss and damage following a bushfire disaster (86 houses were destroyed and 1 person killed in the Sutherland area of New South Wales). (2) The local health resources would not be able to provide psychological interventions for distressed children and adolescents. The project hypotheses were that it was possible to instigate extensive, school based, proactive screening for distress following the bushfire and to identify children and adolescents in most need of psychological care. Secondly, treatment innovations such as children using a therapeutic workbook ('The Bushfire and Me', Storm, McDermott, Finlayson 1994) supervised by a school or health psychologist and completed at home with the aid of parents, would be a cost effective means of providing a therapeutic intervention to large numbers of children. Similarly adolescent group therapy could cost effectively treat students in the school environment, allowing one practitioner to assist numbers of students at one time.

Future publications from the project will highlight epidemiological data including the prevalence of PTSD, depression and anxiety disorders in children in adolescents, and the relationship between bushfire exposure and proximity, separation experiences, accommodation displacement, and perception of threat to the reported prevalence rates. Risk factor analysis will include the above plus a separate module with data on parent distress, parent neuroticism and parent report of child neuroticism. Lastly the workbook and the adolescent group program are being evaluated in a randomised, controlled trial, one of the first studies of this type in the child and adolescent disaster literature.

SUMMARY

Natural disasters such as the 1994 New South Wales bushfire disaster are a cause of considerable immediate and longer term emotional distress in adults, children and adolescents. This paper has outlined the prevalence of Post Traumatic Stress Disorder reported after a range of disasters, and the specific rate found in children and adolescents 6 months after the bushfires in New South Wales. The clinical presentation of distressed adults and children has been detailed, emphasising the breath of possible reactions, the common finding of comorbid psychiatric conditions and the danger of secondary impairment in the interpersonal, academic or employment domains. The Sutherland Bushfire Trauma Project has been briefly described and based on its preliminary findings, it has been advised that routine review of disaster survivors, 6 months after the event, will identify individuals that are still distressed and will benefit from a mental health intervention.

ACKNOWLEDGMENT

The SBTP has been a cooperative undertaking between the NSW Department of School Education, The Department of Child and Adolescent Psychiatry and the Sylvania Child and Family Mental Health Team. Special thanks to Janet Cross, District Guidance Officer, Como–Jannali school cluster.

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